TY Semicondutor® TY

KI1304BDL

■ Features

● TrenchFET Power MOSFET

● 100% Rg Tested

SOT−323 Unit:mm

1 Gate
2 Source
3 Drain
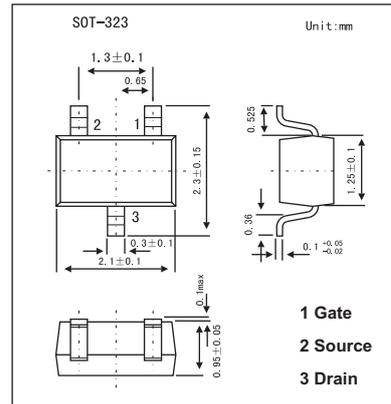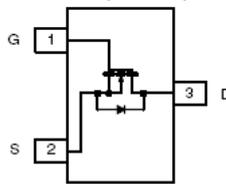
■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-source voltage		V_{DS}	30	V
Gate-source voltage		V_{GS}	± 12	V
Continuous drain current (T_J = 150℃)　　T_c=25℃　　　　　　　　　　　　　　　　T_c=70℃		I_D	0.90 0.71	A
Continuous drain current (T_J = 150℃)　　T_a=25℃　　　　　　　　　　　　　　　　T_a=70℃		I_D	0.85*1,2 0.68*1,2	A
Pulsed drain current		I_{DM}	4	A
Continuous Source Drain Diode Current　T_c=25℃		I_S	0.31	A
	T_a=25℃		0.28	
Power dissipation　　　　　　　　　　T_c=25℃　　　　　　　　　　　　　　　　　　　　T_c=70℃		P_D	0.37 0.24	W
Power dissipation　　　　　　　　　　T_a=25℃　　　　　　　　　　　　　　　　　　　　T_a=70℃		P_D	0.34*1,2 0.22*1,2	W
Operating junction and storage temperature range		T_j, T_{stg}	-55 to +150	℃

*1 Surface Mounted on 1" X 1" FR4 Board.

*2 t = 5 sec

■ Thermal Resistance Ratings Ta = 25℃

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient*1,2	t≤5 sec	R_{thJA}	315	375	℃/W
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	285	340	

*1 Surface Mounted on 1" X 1" FR4 Board.

*2 Maximum under steady state conditions is 360 ℃/W.

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VDS	VGS = 0 V, ID = 250μA	30			V
VDS Temperature Coefficient	△VDS/TJ	ID= 250μA		27.3		mv/℃
VGS(th) Temperature Coefficient	△VGS(th)/TJ			3		
Gate threshold voltage	VGS(th)	VDS = VGS, ID =250μA	0.6		1.3	V
Gate-body leakage	IGSS	VDS = 0 V, VGS = ±12 V			±100	nA
Zero gate voltage drain current	IDSS	VDS =30 V, VGS = 0 V			1	μA
		VDS =30 V, VGS = 0 V, TJ = 70 ℃			5	
On-state drain current	ID(on)	VDS ≥5 V, VGS = 4.5 V	4			A
Drain-source on-state resistance	rDS(on)	VGS = 4.5 V, ID =0.9		0.216	0.270	Ω
		VGS = 2.5V, ID =0.75		0.308	0.385	
Forward transconductance	gfs	VDS =15 V, ID =0.9		2		S
Input Capacitance	Ciss	VDS = 15 V, VGS = 0 V, f = 1 MHz		100		pF
Output Capacitance	Coss			30		
Reverse Transfer Capacitance	Crss			20		
Total gate charge *	Qg	VDS =15V ,VGS = 4.5 V , ID=0.9		1.8	2.7	nC
Total gate charge *	Qg	VDS =15V ,VGS =2.5 V , ID=0.9		1.1	1.7	
Gate-source charge *	Qgs			0.4		
Gate-drain charge *	Qgd			0.6		
Gate Resistance	Rg	f=1MHz		1.5	2.3	Ω
Turn-on time	td(on)	VDD = 15V , RL = 22Ω , ID =0.68A , VGEN =4.5V , RG = 1Ω		10	15	ns
	tr			30	45	
Turn-off time	td(off)			5	25	
	tf			10	15	
Continuous Source-Drain Diode Current	Is	TC = 25℃			0.31	A
Pulse Diode Forward Current*	IsM				4	
Body Diode Voltage	VSD	Is = 0.28 A		0.8	1.2	V
Body Diode Reverse Recovery Time	trr	IF=0.28A,di/dt=100A/μs,TJ=25℃		50	75	ns
Body Diode Reverse Recovery Charge	Qrr			105	160	nC
Reverse Recovery Fall Time	ta			34		ns
Reverse Recovery Rise Time	tb			16		ns

* Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.

■ Marking

Marking	KF